

## ABSTRACT

A new process configuration, which is based on nitrifier bioaugmentation, achieves essentially complete nitrification at low solids retention times (SRTs) on a year round basis for plants that have a minimum of two activated sludge treatment trains. The process utilizes a membrane bioreactor as a second stage activated sludge system for one of the existing activated sludge systems, which is operated under non-nitrifying conditions. The membrane bioreactor is used to achieve essentially complete nitrification of ammonia derived from influent wastewater and an anaerobic digester recycle stream. The mixed liquor of the membrane bioreactor is comprised of an enriched culture of nitrifying bacteria. To allow the other treatment train(s) to nitrify, the waste sludge from the membrane bioreactor is directed or "donated" to the other "receiver" train(s).

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